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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,507	02/05/2007	Luquan Ren	016687-9009-US00	2147
23409 7590 02/28/2011 MICHAEL BEST & FRIEDRICH LLP 100 E WISCONSIN AVENUE Suite 3300 MILWAUKEE, WI 53202				
EXAMINER CASTELLANO, STEPHEN J				
ART UNIT		PAPER NUMBER		
3781				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/597,507

Applicant(s)

REN ET AL.

Examiner

/Stephen J. Castellano/

Art Unit

3781

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-7 is/are pending in the application.
- 4a) Of the above claim(s) 3, 5 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4 and 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-040)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Claim 2 has been canceled. Claims 1 and 3-7 are pending.

Claims 3, 5 and 6 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected specie, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on April 7, 2010.

Related dimensional information:

20 micrometers = 0.02 millimeters = 0.0007874 inches.

999 micrometers = 0.999 millimeters = 0.03933 inches.

1/25 inches = 0.04 inches = 1.016 mm = 1016 micrometers.

A circle having a 20 micrometer diameter has a 10 micrometer radius and an area of 314 micrometers squared.

A circle having a 999 micrometer diameter has a 499 micrometer radius and an area of 783431 micrometers squared.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant discloses a new distribution density range for the convex units: "from about 10% to about 40%." It can't be determined what is meant by the word "about." A range from 10% to 40% was never discussed previous to this amendment. Even though the larger range of 10% to 60% was explicitly stated, the range from 10% to 40% would refer to a wholly different limitation which had not previously disclosed anywhere in the original specification.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroyer in view of Nagaoka et al. (5447803) (Nagaoka).

Kroyer discloses a cooking utensil for non-stick applications having inner walls, the bottom wall's inner surface has a non-smooth surface with convex units (rounded tops 4), the height of the units ranges from 20 micrometers to 999 micrometers (see col. 3, lines 13-15 which state "with depressions having a depth of approximately 1/25 inch or less and a diameter of about 1/8 - 3/8 inch."). Also, Fig. 7 denotes a rippled upper surface that is believed to have convex units within the range. The 1/25 inch dimension equals 1016 micrometers. Although 1016 micrometers is outside the range, the depth of the depressions is "1/25 inch or less." The depth of the depressions is equivalent to the height of the convex units.

The shape of the convex units is best shown in Fig. 8, this shape appears to be a spherical crown shape because the shape limitation would allow deviation from a perfect hemisphere. Applicant could have stated "hemisphere or hemispherical" but chose the current language.

When evaluating the bottom circle diameter of the spherical crown, it should be noted that this is a dimensional limitation rather than a limitation that specifies the shape. A hemisphere has a height exactly $\frac{1}{2}$ of the diameter of the circle defining the hemisphere's bottom. Calculating bottom circle diameter with the $\frac{1}{25}$ inch dimension would yield a diameter of $\frac{2}{25}$ inch or 2032 micrometers. Although 2032 micrometers is outside the range, the depth of the depressions is " $\frac{1}{25}$ inch or less" and the corresponding bottom circle diameter is $\frac{2}{25}$ inch or less. The bottom circle diameter is within the range of 20 to 999 micrometers. The 20 to 999 micrometer range stated for the bottom circle diameter is 50% of what would be expected for a hemispherical shape.

A circle having a 20 micrometer diameter has a 10 micrometer radius and an area of 314 micrometers squared. Projection area of the convex units directly corresponds to bottom circle diameter. The projection area is within the range of 314 to 783431 micrometers squared. The 314 to 783431 micrometer squared range stated for the projection area is 50% of what would be expected for a hemispherical shape.

Distribution density seems to be controlled by the pattern of protrusions and depressions and the relative spacing of each. The distribution of protrusions versus depressions appears to be 50% to 50%. Fifty percent protrusion density is within the 10% - 60% range stated in claim 1.

Kroyer discloses a surface film (enamel coating 6) formed on the upper surface of the convex units as shown in Fig. 5. However, the surface film is not an oxidized film. Nagaoka

teaches a titanium oxide film (see abstract, line 15) for a cooking vessel (see Fig. 1). It would have been obvious to add the titanium oxide film to produce good decorative properties effecting a color tone stabilizing treatment.

Claims 1, 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroyer (2618258) in view of Grycan et al. (5921173) (Grycan), McFadden (3473952) and Nagaoka.

Kroyer and Nagaoka are applied as stated in the previous rejection.

If it should be deemed that the shape of the tops (convex units) of Kroyer are not similar enough to a hemispherical shape such that they are not deemed shaped like a spherical crown, then the teachings of Grycan and McFadden are applied. Grycan teaches depressions (recessed portions 142) and convex units (protrusions 138). The depressions of Grycan are defined by a planar surface. The bottom end of each convex unit of Grycan is clearly designated where the convex unit meets this planar surface. The convex units of Grycan are spaced and the shape of the bottom end of each convex unit is clearly defined. The bottom end is either a circle or an oblong ellipse. McFadden teaches a polymer release coating having two layers, a first layer contains a suspenoid of spherical glass beads 14 and bonding material 16. The spherical glass beads define a shape of the first layer of coating such that the tops are spherical or hemispherical as shown in Fig. 1. It would have been obvious to modify the shape of the convex units to be hemispherical to define a shape that can space food away from a majority of a cooking surface by arranging for only top convex surfaces to contact the food. This is desirable for two reasons: (1) to allow even cooking with less than a majority of the adjacent food surface in contact with the cooking utensil and (2) reduce the adhesion of food to a cooking surface because less area is in contact with the cooking utensil which results in less scorching of food.

If it should be deemed that the dimensions are not adequately shown, McFadden teaches glass bead size of 25 to 75 microns (0.025 to 0.075 mm). It would have been obvious to modify the size of convex units to be on the order of 25 - 75 micrometers as such is taught as an optimal size for curvature of a convex unit in a cooking utensil (see column 1, line 29).

Re claim 7, Fig. 4 of McFadden teaches a spacing. As shown in Fig. 4 of McFadden, the spacing of the glass shows a density of approximately 10% - 35%. It would have been obvious to lower the distribution density to reduce the area of contact which would reduce scorching and food adhesion.

Applicant's arguments filed December 29, 2010 have been fully considered but they are not persuasive. Applicant states that Kroyer fails to teach "convex units." Instead, applicant finds that the wavy form surface is different than the "convex units" claimed. Applicant's statement is not well taken and is not support by a rational line of reasoning. There is no evidence set forth that disproves that the tops form convex units.

Applicant relies on the same argument about Kroyer to carry over to the 103 rejections combining Kroyer, Grycan, McFadden and Culbertson. Applicant fails to present a different argument even when Grycan and McFadden also teach convex units.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Stephen J. Castellano/ whose telephone number is 571-272-4535. The examiner can normally be reached on increased flexibility plan (IFP).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony D. Stashick can be reached on 571-272-4561. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen J. Castellano/
Primary Examiner
Art Unit 3781

sjc